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PATENT AND TRADEMARK OFFICE

APPLICANT: Kuo Yi-Lung  
APPLICATION NO.: 10/767,415  
FILING DATE: January 28, 2004  
TITLE: COMPUTER COOLING SYSTEM WITH FAN  
EXAMINER: Robert Joseph Hoffberg  
GROUP ART UNIT: 2835  
ATTY. DKT. NO.: 23724-07791

00001

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Dated: March 10, 2006

By:

Robert A. Hulse, Reg. No. 48,473

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DECLARATION OF FACT BY KUO YI-LUNG UNDER 37 C.F.R. § 1.131

I, Kuo Yi-Lung, hereby declare the following:

1. I am the sole inventor of the invention described and claimed in U.S. Patent Application Serial No. 10/767,415 (hereinafter, the "Subject Application"), entitled "Computer Cooling System with Fan," filed on January 28, 2004.

Kuo Yi-Lung

2. The Subject Application claims the benefit under 35 U.S.C. § 119(e) of U.S. Provisional Application No. 60/456,643 (hereinafter, the "Provisional Application"), filed on March 20, 2003.

3. The Subject Application was also filed in Taiwan as Taiwan Application No. 091201233 (hereinafter, the "Taiwan Application") on February 4, 2002. The Subject Application does not claim priority to the Taiwan Application, either directly or indirectly.

4. I invented the invention as described and claimed in the Subject Application in Taiwan, a WTO member country, before July 25, 2002, as evidenced by the following:

a. Attached hereto as Exhibit A is a true and correct copy of selected pages of the Taiwan Application in the Chinese language. These pages were included with the Provisional Application, also in the Chinese language. Illustrated in these pages is the general conception of a cooling system for a personal computer. The Taiwan Application include a description and drawing of the invention, as claimed in the Subject Application, including a computer chassis, a motherboard inside the computer chassis, a number of heat-generating electronic components (including a CPU socket) mounted on the motherboard, a fan mounted to the computer chassis directing an airflow from outside to inside the computer chassis to cool the electronic components, and a filter in the airflow path. The pages (including Fig. 2) also show and describe a plurality of air outlets in the chassis that are located far from electronic components on the motherboard that generate a relatively large amount of heat near electrical components on the motherboard for which less heat dissipation is desired.

b. Attached hereto as Exhibit B is a true and correct copy of a "Statement of Accurate Translation of Non-English-Language Prior-Filed Provisional Application

Kao Yi-Lung

Pursuant to 37 C.F.R. § 1.78(a)(5)(iv)" and an accompanying translation of the non-English Provisional Application, both of which were submitted in the Subject Application on June 14, 2005. The translation of the Taiwan Application illustrates the features of the claimed invention, as described in the preceding paragraph.

5. The Taiwan Application was diligently forwarded to a patent attorney for the purpose of filing a patent application in the United States, resulting in the March 20, 2003, Provisional Application and, ultimately, the Subject Application.

6. Accordingly, the invention described and claimed in the Subject Application was conceived of before July 25, 2002; was constructively reduced to practice before July 25, 2002, by the filing of the Taiwan Application; and was diligently reduced to constructive practice from before July 25, 2002, to the filing of the Provisional Application on March 20, 2003.

7. I hereby declare under penalty of perjury under the laws of the United States of America that all statements made herein to the best of my own knowledge are true and correct, and that all statements made on information and belief are believed to be true and correct; that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. § 1001; and that such willful statements may jeopardize the validity of the application or any patent issued thereon.

Kuo Yi-Lung  
Kuo Yi-Lung

2006. 3. 9  
Date

# **Exhibit A**

創作名稱：電腦主機散熱系統

創作摘要：

本案係一種電腦主機散熱系統，其係於電腦主機殼體之一壁上，設置一散熱風扇，且該散熱風扇係為送風風扇者。

創作說明：

按電腦於吾人生活週遭多有所見，亦為產業界，乃至於吾人生活帶來莫大的便捷，因此，電腦之發展，堪稱為另一次產業革命。

由於電腦不斷追求高速度或大容量，因此，電腦主機內部之電子元件因之而帶來之高溫，始終存在，此亦為從事電腦設計不容忽視之因素，尤其是 CPU 之產生之高溫，若不予以排除，則會使電腦之可靠性因之降低，當然，其他位於 CPU 周邊之電子元件，亦有熱源之可能。

是以，習知之電腦主機，在設計上即配置著系統散熱之裝置，普遍之作法，係以一系統風扇，亦即抽風風扇，將內部之熱氣抽出，這種方式行之有年，而該系統風扇，通常係設於一外壁上，並以主機內部之電源為動力來源。

這種方式固可達基本之散熱功能，唯缺失在於由於係採抽風方式，是以，主機內部之空氣係為渦流甚至於亂流，而後則經抽風風扇入口處而為抽出，對 CPU 言，或許有較佳之散熱，唯對周邊之元件，如電容言，則熱氣難以抽離，此係為美中不足之處，故以目前電腦主機中之 CPU 言，其溫度始終接近 100°C，而無法為有效降低。

有鑑於此，申請人乃本於長年來從事電腦主機板研發與產銷之經驗，潛心研究，期能克服上述缺失，經再三實驗，

始創作出本案之「電腦主機散熱系統」。

為進一步揭示本案之具體技術內容，首先請參閱圖示，其中，圖一為電腦主機板之示意圖，圖二為本案之吹風裝置示意圖。

如圖所示，基本上，本案之設計概念，係完全打破傳統之窠臼，而採取內吹之方式，故於電腦主機殼體之一外壁間，設置一送風風扇 1，該送風風扇以正對著 CPU 部位為佳，唯不以此為限，為了熱空氣之逸出，故本案之主機殼體之兩側壁上，則開具若干之散熱孔 2，且其以對應於發熱元件，如電容之部位為佳。

為使送風風扇 1 於送風時吸入浮塵顆粒，因此，可於其葉片之前或後，加置一濾網，唯此屬習知技藝，故不擬贅述。

請參閱圖示，本案於實施時，由於對 CPU 言，係採吹風方式，是以，經由送風風扇 1 所吹入之外界空氣，可帶走 CPU 所產生之熱量，而後，該氣流於流至外壁時，亦可將行進路徑所經過之其他電子元件所產生之熱量帶出，並經散熱孔而逸於大氣中，而達使電腦主機降溫之目的。

經由實測，採用本案之送風散熱系統，較之於習知之抽風方式，其溫度可降底  $10^{\circ}\text{C}$  以上，此對電腦主機設計言，係為一大突破。

本案所揭示者，乃較佳實施例，舉凡局部之變更或修飾而源於本案之技術思想而為熟習該項技藝之人所易於推知者，俱不脫本案之專利權範疇。

綜上所陳，本案無論就目的、手段與功效，在在顯示其迥異於習知之技術特徵，且其首先創作合於實用，亦在在符合新型之專利要件，懇請 貴審查委員明察，並祈早日賜予

專利，俾嘉惠社會，實感德便，

圖式說明：

圖一為電腦主機板之示意圖。

圖二為本案之吹風裝置示意圖。

圖號說明：

送風風扇      1                  散熱片                  2

申請專利範圍：

1. 一種電腦主機散熱系統，其係於電腦主機殼體之一壁上，設置一散熱風扇，且該散熱風扇係為送風風扇者。

2. 如申請專利範圍第 1 項所述之電腦主機散熱系統，其中之散熱風扇之送風，係正對 CPU 者。

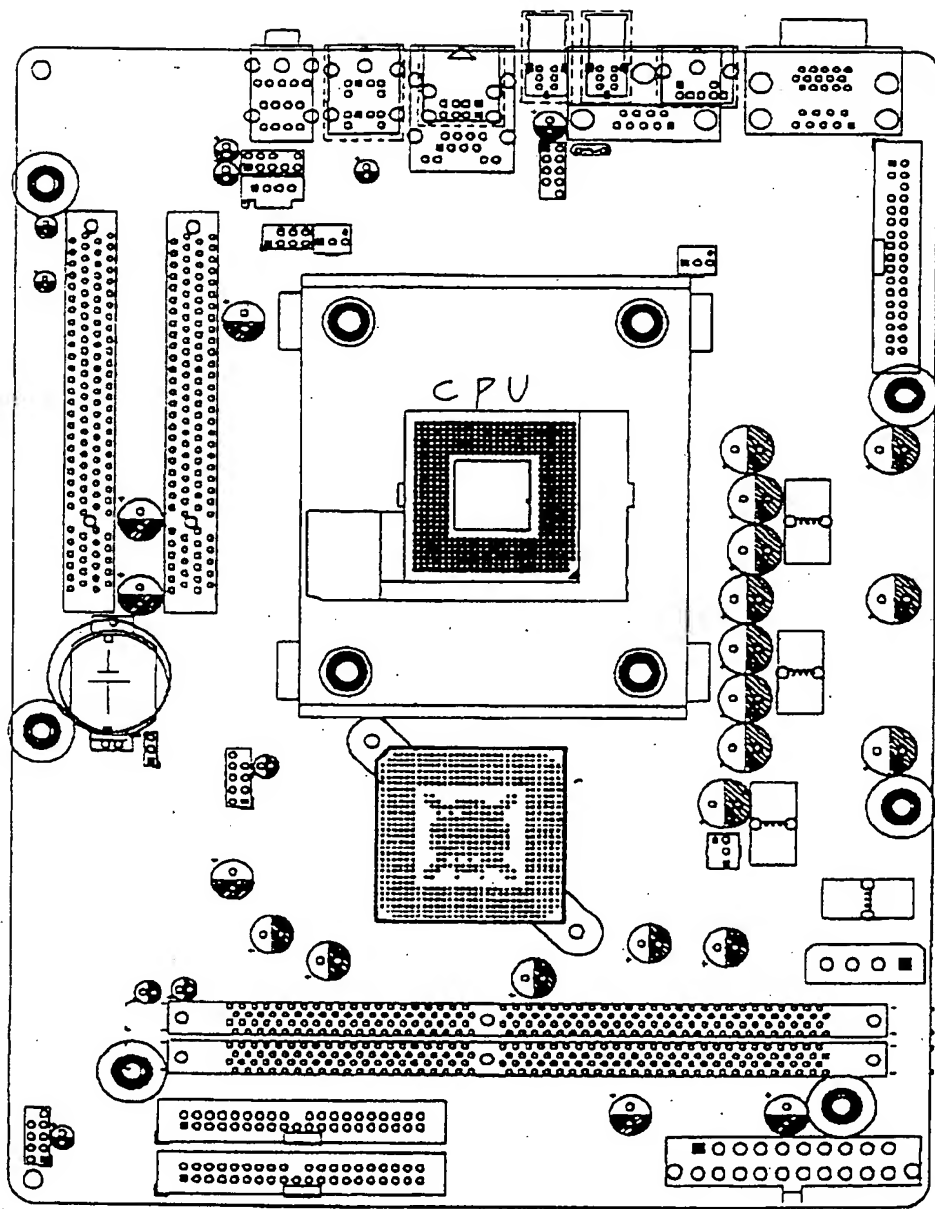
3. 如申請專利範圍第 1 項所述之電腦主機散熱系統，其中之散熱風扇得加置濾網者。

4. 如申請專利範圍第 1 項所述之電腦主機散熱系統，其中之電腦主機殼體對應於發熱元件部位，得開具散熱孔。

Td: 楊勝洲先生(企劃) Fm: 技諾專利 簡

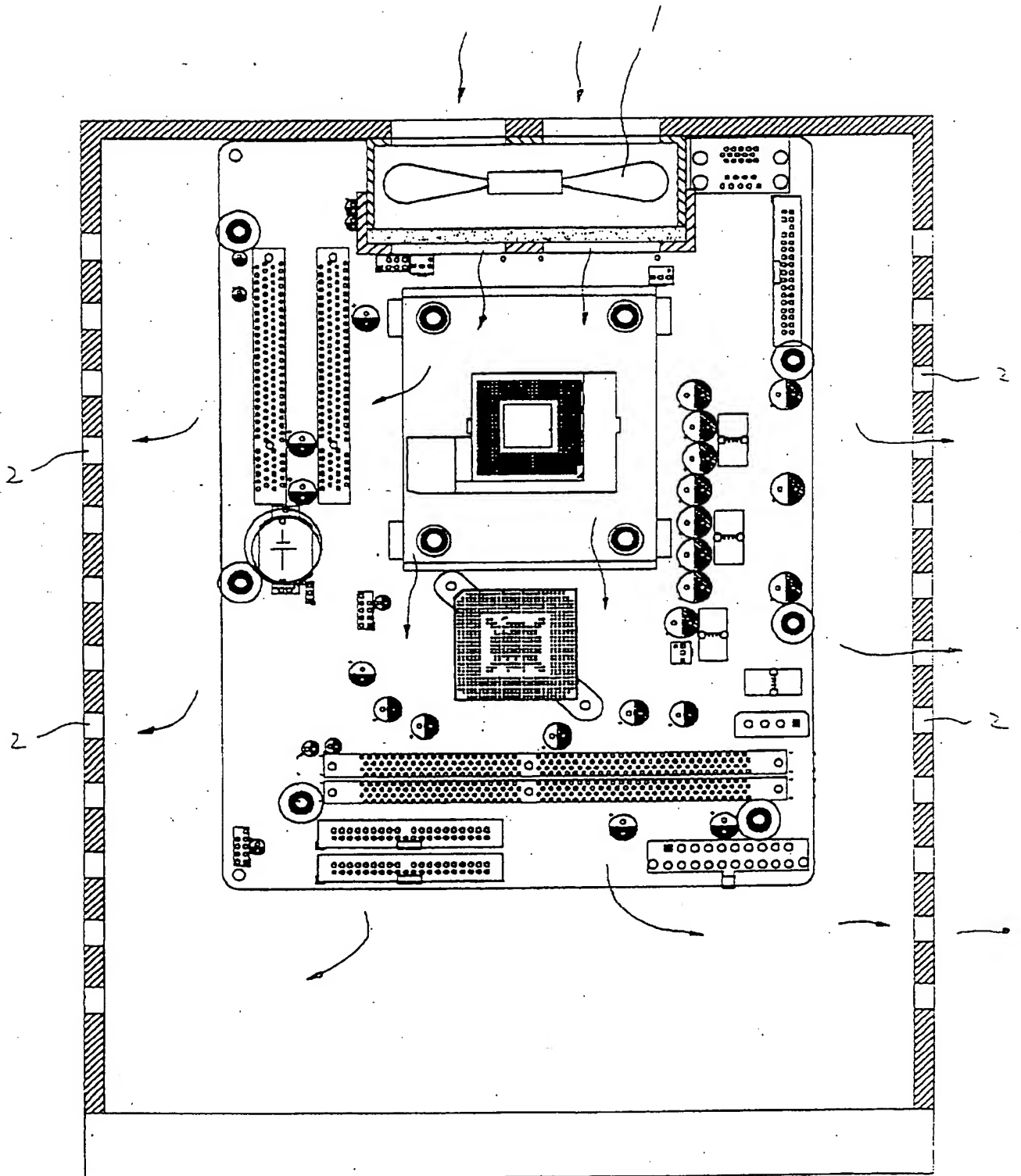
(事務所: R-012)

名稱: 電腦主機散熱系統



圖





# **Exhibit B**



<b>TRANSMITTAL FORM</b> <i>(to be used for all correspondence during pendency of filed application)</i>		U.S. Department of Commerce Patent and Trademark Office	Application Number	10/767,415
			Filing Date	January 28, 2004
			First Named Inventor	Yi-Lung Kuo
			Group Art Unit Number	2835
			Examiner Name	GREGORY D. THOMPSON
Total Number of Pages in This Submission		5	Attorney Docket Number	23724-07791

ENCLOSURES (check all that apply)	
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<input type="checkbox"/> Power of Attorney	<input type="checkbox"/> Certified Copy of Priority Document(s)
<input type="checkbox"/> Application Data Sheet	<input type="checkbox"/> After Allowance Communication to Group
<input type="checkbox"/> Information Disclosure Statement & PTO/SB/08A <input type="checkbox"/> Copies of ____ Cited References	<input checked="" type="checkbox"/> Statement of Accurate Translation of Non-English Language Prior-Filed Provisional Application Pursuant to 37 C.F.R. § 1.78(a)(5)(iv)
<input type="checkbox"/> Request for Corrected Filing Receipt	<input type="checkbox"/> _____
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SIGNATURE OF ATTORNEY OR AGENT		
Signature:		
Attorney/Reg. No.:	Robert A. Hulse. No. 48,473	Dated: June 14, 2005

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IN THE UNITED STATES  
PATENT AND TRADEMARK OFFICE

APPLICANTS: Yi-Lung Kuo  
APPLICATION NO.: 10/767,415  
FILING DATE: January 28, 2004  
TITLE: Computer Cooling System With Fan  
EXAMINER: Gregory D. Thompson  
GROUP ART UNIT: 2835  
ATTY. DKT. NO.: 23724-07791

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Dated: June 14, 2005

By:

  
Robert A. Hulse, Reg. No. 48,473

COMMISSIONER FOR PATENTS  
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**STATEMENT OF ACCURATE TRANSLATION OF NON-ENGLISH-LANGUAGE PRIOR-  
FILED PROVISIONAL APPLICATION PURSUANT TO 37 C.F.R. § 1.78(a)(5)(iv)**

Sir:

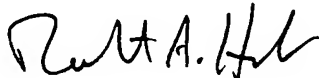
The above-identified application claims the benefit of U.S. Provisional Application No. 60/456,424, filed March 20, 2003, which was filed in a language other than English. In accordance with 37 C.F.R. § 1.78(a)(5)(iv), Applicant hereby submits an English-language translation of the non-English-language prior-filed provisional application and a statement that the translation is accurate.

Applicant engaged the services of a competent translator to obtain the attached English translation. Accordingly, the attached English translation is believed to be an accurate translation of the non-English-language prior-filed provisional application, upon which the above-referenced utility patent application is based.

If it is believed for any reason that direct contact would resolve any remaining issues in this matter, the Patent Office is encouraged to telephone the undersigned at the number given below.

Respectfully submitted,  
YI-LUNG KUO

Dated: June 14, 2005

By: 

Robert A. Hulse, Reg. No. 48,473  
Attorney for Applicant  
Fenwick & West LLP  
801 California Street  
Mountain View, CA 94041  
Tel.: (415) 875-2444  
Fax: (415) 281-1350



Design Name: Computer Cooling System

**Abstract:**

This design covers a computer cooling system based on a blowing fan, which is mounted on wall of computer chassis.

**Design Description:**

Computers have found wide applications in our lives and industries, increasing efficiency greatly. Development of computing is known as another industrial revolution.

Computers offer larger capabilities and operate at higher speed than ever, but electronic elements, CPUs in particular, inside the chassis generate more heat. Computing performance is compromised if such heat is not exhausted. Other elements around CPUs may also produce heat.

The traditional computer, the prior art, is equipped with a cooling system based on a discharge fan to exhaust inside hot air. The system fan mounted on wall of the chassis is driven by internal power supply.

This configuration can offer basic function. However, such cooling system can result in vortexes or even turbulent currents inside the chassis before discharge. CPU may come with excellent cooling systems, but other elements such as capacitors have to be exposed to hot air. CPU temperature is always about 100°C which is difficult to cool down. This is the limitation of the traditional cooling system.

In view of this, Applicant, experienced in development and manufacture and marketing of PC products in the past years, has overcome the above-mentioned limitations through tests and launched this design, a computer cooling system.

Technical details of this design will now be described with reference to the following figures. Fig. 1 shows a motherboard inside a computer, while Fig. 2 illustrates the cooling system for this design.

This design is based on a blowing fan instead of the traditional discharge one on the whole. The blowing fan (1) is mounted on wall of the chassis. It is better to adjust the blowing fan to face the CPU, but it is not limited to this only. There are multiple air outlets (2) on side panels to discharge hot air out of the chassis. It is better to let the air outlets be near heating elements such as capacitors.

A filter, the prior art, is added in front of or at the back of the blowing fan (1) to filtrate floating dusts. It is not described hereon.

On the part of the CPU, the airflow sent in by the blowing fan (1) carries away heat it generates and that caused by other elements out of the air outlets, as shown in Fig. 2.

According to actual measurement, temperature inside a computer equipped with such a blowing fan system is 10°C lower than that inside one come with a discharge fan system. This is an important breakthrough in development of motherboard.

The preferred embodiment for this design is described hereinabove. Any modification derived from this design by those who are familiar with it will be subject to the scope of the claims.

In a word, this design is significantly different from the prior art with regard to purpose, way and effect. This utility innovation meets all requirements for application for a design patent. We request you, Examining Commissioners, to examine our claims, and to make a patent grant decision at the earliest opportunity.

Illustrations:

Fig. 1: Diagrammatic sketch of a motherboard.

Fig. 2: Diagrammatic sketch of airflows for this design.

Captions:

blowing fan    1                      heat sink    2

What is Claimed is:

1. A computer cooling system based on a blowing fan, which is mounted on wall of the chassis.
2. A computer cooling system according to claim 1, wherein the cooling fan facing the CPU works in blowing mode.
3. A computer cooling system according to claim 1, wherein the cooling system is equipped with a filter.
4. A computer cooling system according to claim 1, wherein there are multiple air outlets on side panels of the chassis near heating elements.

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